

Information Operations and the BEND framework

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The CMU centers for:

Informed DEMocracy And Social cyber-security

Computational Analysis of Social and Organizational Systems

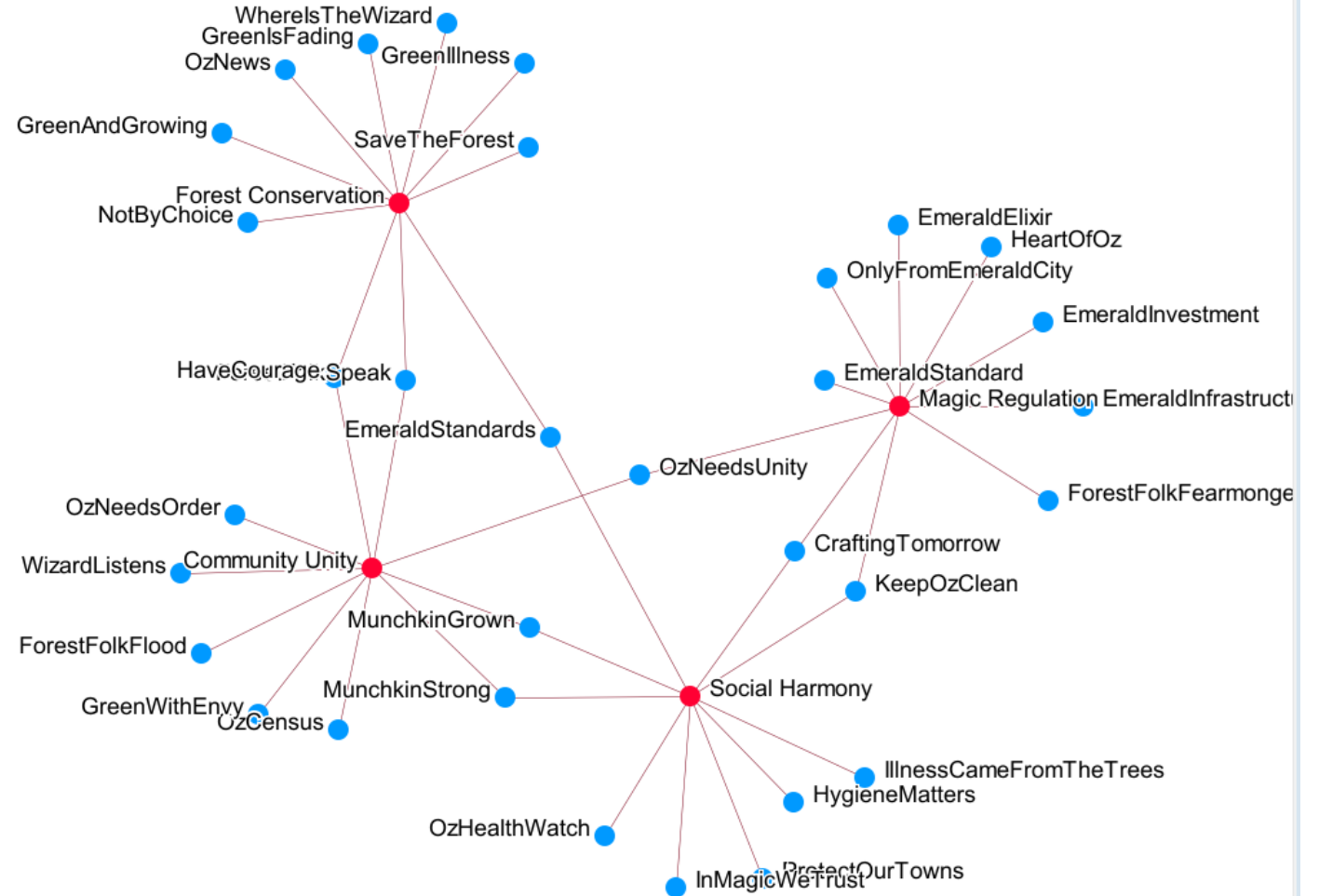


Carnegie Mellon University



Recap: visualizing Topics with Concepts

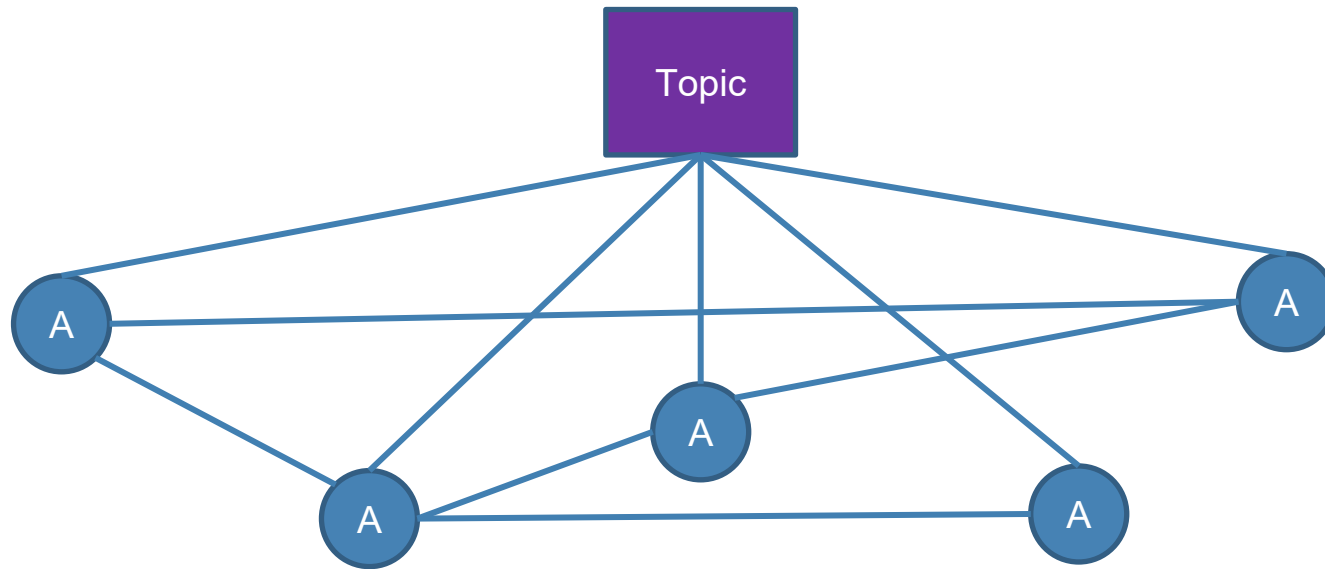
- Visualize the Topic x Concept network to see how hashtags are shared across the topics
- Here, blue are hashtags, red are topic labels



Recap: topic-oriented communities

Topic-Oriented Community

Group of agents discussing the same topic amongst each other



Agent: Twitter user

Topic can be

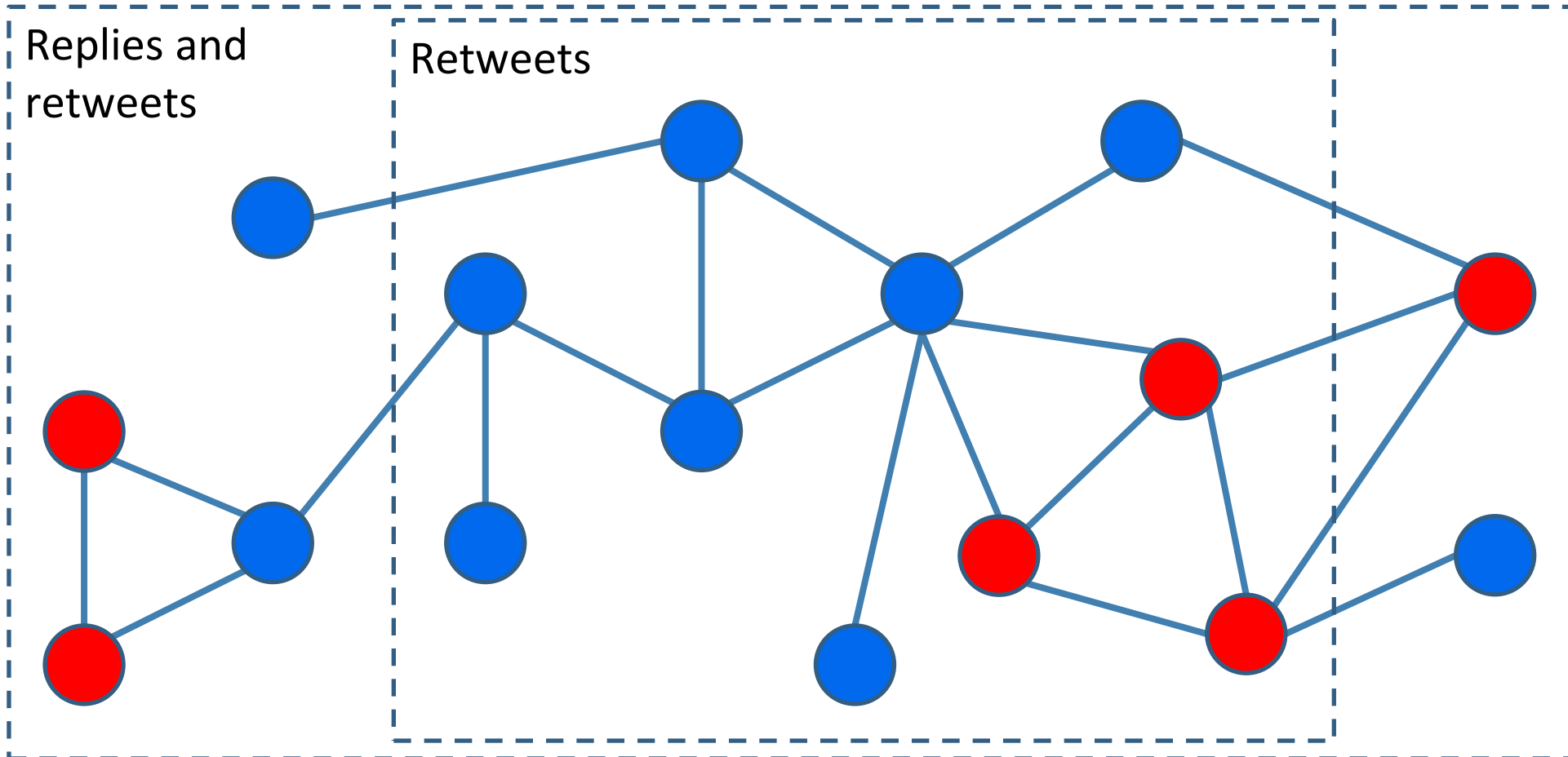
- concepts (single ideation, such as 'dog', 'vaccines', or 'United States' – sometimes can be represented when using hashtags)

OR

- themes/main ideas (develops a 'concept', such as 'no leashes in parks', 'pro-vaccine stance', or 'American foods')

*Based on social interactions, agent shared knowledge connections, and agent topic connections

Recap: stance label propagation



The BEND framework for Information Operations

This report is separated into two parts – identify and analyzing:

- Topic-oriented Communities
- BEND Maneuvers (framework for analyzing online influence on social media)
 - Documents
 - Agents
 - Communities

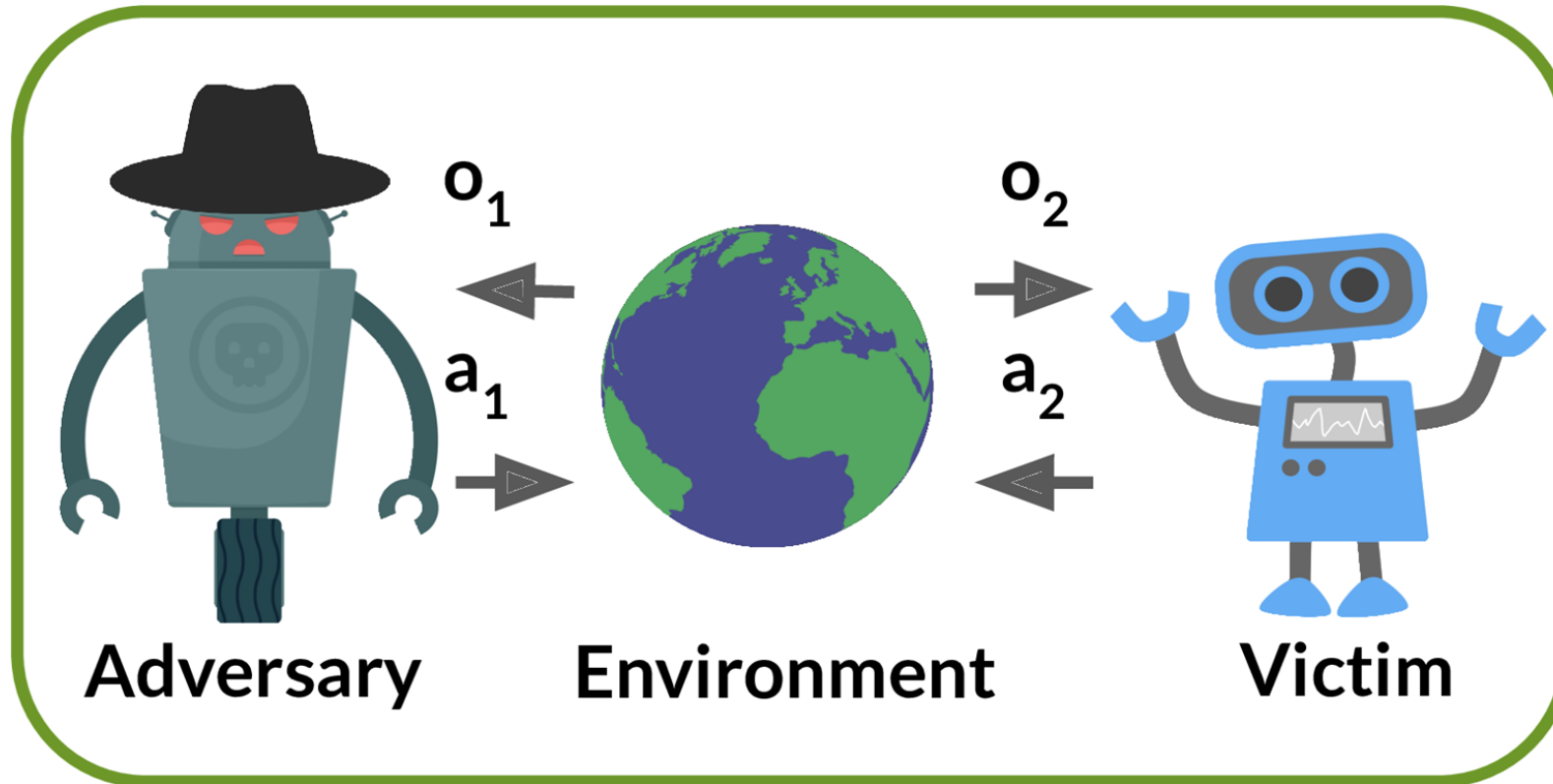
BEND Maneuvers

Narrative Maneuvers: Information and content of messages (What/How topics are discussed)			Community Maneuvers: Alter the connections within the social network (i.e., online communities or threads)		
Influence Emotion	Develop Narrative	Counter Narrative	Affect Leaders	Make Groups	Unmake Groups
Excite	Engage	Distract	Back	Build	Neglect
Dismay	Explain	Dismiss	Negate	Boost	Narrow
	Enhance	Distort		Bridge	Null

BEND Maneuver Definitions

	Community Maneuvers		Narrative Maneuvers	
	Social network manipulation		Knowledge network manipulation	
	Affects who is talking/listening to who		Affects what is being discussed	
Constructive	Back	Actions that increase the importance of the opinion leader	Engage	Discussion that brings up a related but relevant topic
	Build	Actions that create a group or the appearance of a group	Explain	Discussion that provides details on or elaborates the topic
	Bridge	Actions that build a connection between two or more groups	Excite	Discussion that brings joy/happiness/enthusiasm to a group
	Boost	Actions that grow the size of the group or make it appear that it has grown	Enhance	Discussion that encourages the group to continue with the topic
Deconstructive	Negate	Actions that limit the opinion leaders' effectiveness such as by reducing the number who can or do follow, reply, or attend to	Dismiss	Discussion about why the topic is not important
	Null	Actions that lead to a group being dismantled	Distort	Discussion that alters the main message of the topic
	Narrow	Actions that lead to the group becoming sequestered from other groups	Dismay	Discussion about a topic that will bring worry/sadness/anger to a group
	Neglect	Actions that reduce the size of the group or make it appear as such	Distract	Discussion about a different or irrelevant topic

Dynamic multi-agent scenarios: Diagnose manipulation and counter!



Multi-Agent Threat Model